DOCUMENT RESUME

ED 262 394 CS 008 187

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TITLE The Relationship of Oral Language Features to Reading Achievement.
PUB DATE 85
NOTE 43p.; Paper presented at the Annual Meeting of the American Educational Research Association (69th, Chicago, IL, March 31-April 4, 1985).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Classroom Communication; *Comparative Analysis; Elementary Education; Kindergarten; *Language Acquisition; Language Skills; Language Usage; *Oral Language; *Reading Achievement; *Reading Research
IDENTIFIERS *Linguistic Awareness

ABSTRACT

To gain more information about the language awareness of young children, a study examined the relationship between 14 middle class kindergarten children's oral language and their reading achievement in third, fourth, and fifth grades. Individual children's ranks on 61 oral language features derived from a previous microethnography were compared to their ranks on the California Test of Basic Skills and their Reading Miscue Inventory scores using Kendall correlation coefficients and multiple regression equations. The language features included language awareness indices as well as pragmatic, functional features during classroom activities. The analysis revealed several oral language features had positive though not usually significant correlations with fourth and fifth (but not third) grade reading measures and their contributions to the variance in the multiple regression equations were generally substantial. The trend toward a positive relationship of these features with later reading measures was consistent. Metalinguistic awareness (print awareness and offering or requesting definitions or etymologies), correcting self or others' behavior or positions, and the use of the interactive functions of language across whole sessions and within specific activities that were not teacher directed were the oral language features that presaged later reading achievement. (HOD)

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ED262394

The Relationship of Oral Language Features to Reading Achievement

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Paper presented at the Annual Meeting of the
American Educational Research Association,
Chicago, March-April, 1985

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Abstract

This study examined the relationship between 14 middle class kindergarteners' oral language and their reading achievement in 3rd, 4th, and 5th grades. Individual children's ranks on 61 oral language features derived from the author's previous microethnography were compared to their ranks on California Test of Basic Skills and Reading Miscue Inventory scores using Kendall and multiple regression equations. Several oral language features had positive though not usually significant correlations with 4th and 5th (but not 3rd) grade reading measures and their contributions to the variance in the multiple regression equations were generally substantial. The trend toward a positive relationship of these features with later reading measures was consistent and provocative. Metalinguistic awareness (print awareness and offering or requesting definitions or etymologies), correcting self or others' behavior or propositions, and the use of the interactive functions of language across whole sessions and within specific activities that were not teacher directed (e.g. free play) were the oral language features that presaged later reading achievement. The implication of these results is that classroom situations which impose the fewest constraints on children's speaking may be the ones that correspond most closely to the interactive reading processes used by mature readers.

The Relationship of Oral Language Features to Reading Achievement

The purpose of this research was to determine oral language features which presage reading ability. Evidence for a relationship between speaking competencies and reading ability has been equivocal (Dahl, 1981; Groff, 1977; Weintraub, 1968). Nevertheless, the importance of oral language development for reading has been emphasized by many (e.g. Ruddell, 1974). Previous research (Loban, 1963; Strickland, 1962) noted that indices such as vocabulary, clausal complexity, and length as well as intelligence were related to reading achievement. However, recent research (Ehri, 1984) suggests that those results may have been confounded with the effect of reading experience itself upon the measures. Therefore, there is need for oral language indices of future reading ability from the pre-reading period.

Another explanation for the equivocal results of establishing a connection between the oral language and reading ability lies in the various models of reading that were adopted. When reading ability was considered as a linear accumulative mastering of discrete skills, it was reasonable to measure children's syntactic and semantic levels as predictors. However, when reading was considered

an interactive process between author and reader (Spiro, 1980), or a psychological guessing game (Goodman, 1976), pragmatic features and the purposes of language assumed a more prominent role. According to Halliday (1975) children's oral language learning is a process of "learning to mean." This might also be characteristic of learning to read. As Mason (in press) suggests,

> Children do not mindlessly learn only as they are told. They learn by extending, interpreting, and evaluating. They test new concepts against their own store of knowledge and accept, reject, or modify information to fit their perspective, and embed learning in a purposeful search.

According to Wilkinson (1982) both the structural (e.g. syntactic) features and the functional (pragmatic) features of language are important for school competence. Perhaps the equivocal results in previous research have been due to a wavering balance between the structural and functional oral indices of reading.

Information about the structural properties of the language of good readers is extensive. What is needed is more knowledge about the uses of language by good readers compared to poor readers. In a recent longitudinal study, Torrance and Olson (1984) compared both structural and

discourse features of first graders with their subsequent 2nd grade reading scores. They found that the discourse features such as the initiation and maintenance of a topic were not related to reading acquisition, but that the quality of the topics and the quality of the topic maintenance devices were indirectly related to subsequent reading achievement. They also noted a problem, that the early reading tests contained less complex structures than the children controlled in oral tests. One way to avoid this problem would be to compare students' reading test scores in later grades with their spontaneous talk in earlier schooling.

A final explanation of the mixed results in finding oral language antecedents for reading ability may be that children approached the different tests, and even selections within the test, with different purposes. Purposes for reading change with age and experience, but all involve the attempt to derive meaning from written language. According to Downing's (1984) cognitive clarity theory, the growing awareness of both the functional concepts of print (the communication purposes of writing) and the featural concepts (coding rules) together advance reading skill. For the beginning reader, understanding the parallel functions and features of written language and oral language may be

most important. Clearly we need more information about the language awareness of young children.

This study examined the oral language produced in a kindergarten class and compared several features of individual children's speaking with their reading achievement in 3rd, 4th, and 5th grade. The features included language awareness indices as well as pragmatic, functional features during classroom activities. Many kindergarten oral language features did correlate positively with reading measures at the various grades, and the relationship was stronger with the 4th and 5th grade reading scores than with the 3rd grade scores. The results will be reported with the understanding that they are a preliminary set of possible oral language predictors of reading achievement based on the analysis of the language production of one kindergarten class.

Method

Kindergarten Sources

The kindergarten material was derived from the author's previous microethnography (Lazarus, 1981). The classroom was in a public school serving a middle class community. The children were white, middle class native speakers of English with an average age of 5 years and 9 months. There were 18 subjects at the end of the kindergarten research,

and 14 of these were available for the 5th grade research. Data were collected throughout whole sessions of kindergarten over 22 days, from November to March, with a core period of 10 consecutive days in January. During the January core collection period, attendance was 97% and no child was absent more than 2 of those 10 days. An open, activity type schedule was used by the teacher. Formal lessons were rare, but whole group sessions were interspersed throughout the day. The regular activities were: Arrival Time during which the teacher stood at the door and conversed with the children as they entered, Group Time which included calendar lessons and discussions of the schedule, Sharing Time, Work Time which was a free play period, Sustained Silent Reading, and Story Time. Recess, Evaluation, and Discussion Sessions were included sometimes.

The language production throughout the whole sessions of kindergarten were audio-taped and then transcribed by the researcher. There were 27 hours of tape at the end of the research. Log notes permitted the identification of individual children's speaking turns and the creation of separate protocols. The mean number of turns per child was 444, with a range of 268-719 and a standard deviation of 128. Language production during the core period represented 66% of the total speaking turns of the 14 identified children tested in 5th grade.

A modified Slosson test was administered before entry to kindergarten. The average score was 126 with a range of 91-164 and a standard deviation of 121.

Reading Measures

The researcher administered an adapted (RMI) Reading Miscue Inventory (Griffin & Jongsma, 1980) to the 14 children still in the school system in 5th grade. The children were ranked according to their scores on the RMI for retelling with and without prompts and for percent of miscues that results in no loss of comprehension (%NLC). In addition, scores for these 14 children were collected on the California Test of Basic Skills (CTBS) form U, level F for 3rd and 4th grade and form U level G for 5th grade as the source for vocabulary, comprehension, and total reading indices by grade.

Intelligence Measures

Scores from a modified Slosson test administered for kindergarten admission and from 3rd and 5th grade Cognitive Skills Index (CSI) as included with the California Test of Basic Skills battery constituted the intelligence measures. These measures were interrelated. They were used variously in the multiple regressions, as they all accounted for substantial amounts of the variance.

Statistical Methods

Kendall correlation coefficients were computed to determine which oral language features correlated significantly (alpha $\leq$ .05) with reading achievement scores. Multilinear regression analyses were conducted to explore the cumulative effect of subsets of the variables. For some of these analyses the number of cases was reduced from 14 to 12 by eliminating two outliers from the data, a child highest on the intelligence measures, but low on frequency of talking and a child lowest on the intelligence measures, but high on frequency of talking. The analyses were restricted to fewer than six predictor variables per run for the 14 cases and 4 predictor variables for the 12 cases. The use of frequency data is a further limitation, but it was justified by the exploratory nature of the study.

Limitations

The children were all good readers in 5th grade. On the CTBS test the scores ranged from 5.9 to 10.9. The question for this research is whether any kindergarten oral language features distinguished the better readers from the good readers.

Sustained Silent Reading and most of the Story Times were not observed since I used that time to execute a

drawing task by pairs of children. The data would have been enriched with children's comments about print if these sessions had been observed.

Data Analysis

The oral language features selected for this section are the most promising categories derived from repeated analyses of the transcripts of the 14 kindergarten children's protocols.

Speaking Turns

A speaking turn was defined as the uninterrupted utterances of one child. One speaking turn may encompass several sentences. The time base for this feature was the entire research period from November through March. Total speaking turns and the number of turns per classroom activity were calculated for each child. In this paper scores for Arrival Time, Group Time, Sharing Time, Work Time, Discussion and Evaluation Sessions, and Transitions are considered.

Metalinguistic Features

Protocols of each child's language throughout the entire research period were derived from the transcripts. In this report, the frequency of analogies, requesting or offering a definition or an etymology, commenting on the regularities of classroom language use, and total

awareness of print were selected for analysis. The awareness of print feature was subdivided into print as message bearing as contrasted with comments about single words or letters.

Corrections

All corrections of self and others for the entire research period were noted. Several categories were examined, including corrections of others' behavior or propositions, corrections of one's own pronunciation or words, numbers, and propositions. For each child, a rate for a correction category was determined by dividing the tally by his/her total speaking turns.

Functions

A functional analysis of each child's talk during the core period (two consecutive weeks of whole session recordings) was conducted. The analysis used the categories developed by Soskin and John (1963): Structones, Signones, Regones, and Metrones. Structones represent informational statements; signones concern personal or psychological states; regones are statements that attempt to regulate others; and metrones are evaluative or obligation comments.

Three reasons motivated the choice of the Soskin and John (1963) categories. If reading achievement is a

product of discrete skills, such as recall, total structones or proportion of structones might correlate more strongly with the reading measures. On the other hand, if reading ability reflects an interaction with the author, the total or proportional use of signones, regones, or metrones might show a closer relationship. The second reason was the comprehensiveness of the scheme. (For comprehensiveness, two additional categories were used: Excogitative and Expressive representing "thinking aloud" and exclamations, respectively. These were rare in the analysis and figured only in some of the total measures.) The third reason was the simplicity of assignment of the categories which resulted in high interrater reliability. If a statement represented more than one function, it was multiply scored.

For each child scores were calculated for <u>total</u> functions expressed (All Functions), for each function (total structones, etc.), and for the quantity of all functions produced in each scheduled activity. Several proportional measures were also derived by dividing each child's score on a functional feature by his/her all function tally. An analytic function was constructed by summing structones and the rare excogitatives and expressives and dividing by All Function score, thus

providing for each child a proportional measure which might correlate strongly with reading achievement. The interpersonal function was similarly constructed by summing the signones, regones, and metrones and dividing by All Functions to capture relationships with reading ability viewed as an interactional process. The proportion of each child's use of each function per separate activity was calculated by dividing the total number of uses of the function during the activity by the child's total number of functions produced during that activity.

Results

The most striking result was that whereas most of the kindergarten speaking features were negatively correlated and often significantly so with the CTBS 3rd grade reading scores, several of the talking measures were positively correlated with the CTBS 4th and 5th grade scores and the RMI 5th grade measures. The positive correlations rarely reached significance of $p \leq .05$, but the trend toward a positive relationship with later reading scores was consistent and provocative. According to the multiple regression equations, the contributions of certain of the involved variables were substantial.

The results for each of the oral language categories metalinguistic features (print awareness, definitions, analogies and regularities), corrections, speaking turns, and functional usage will be presented separately.

Metalinguistic Features

Print Awareness

All three measures of print awareness were negatively correlated with the CTBS 3rd grade scores but positively correlated with all or some of the CTBS 4th and 5th grade CTBS and RMI scores. Children's comments about written language that dealt with meaning or use were considered to reflect knowledge of print as message bearing. Comments about single words or letters were represented in the print-as-a-word category. Total print awareness was the simple addition of the two categories.

It was print as a message that showed a positive relationship with all of the reading scores in 4th and 5th grade. Using the 12 case data resulted in significant positive correlations for print as message bearing for CTBS 4th grade total score, 5th grade comprehension and RMI %NLC. On the 14 case multiple regression equations, which included 3rd grade CSI, print as a message added .40 to the variance in step two ($mcr^2 = .8671$, significance of $F_{1,13} = .0000$) for the dependent variable, 4th grade total

CTBS score. Knowledge of print as message bearing can, in kindergarten, therefore, be considered as a useful predictor for later reading achievement.

The case for interest in words or letters is much weaker. This feature was negatively correlated with 3rd and 4th grade CTBS scores. For 5th grade reading measures, the correlation with CTBS scores was positive but about at pure chance level of significance. With all RMI measures, the correlation was positive, though not significantly. Print as a word entered into one multiple regression equation in the sixth step where as a negative factor it contributed only .01 to the variance. Therefore, talk about words and letters in kindergarten is not a good predictor of later reading achievement.

Total print awareness had a relationship with reading measures very similar to that of print as a message, the more powerful component: negative correlations with 3rd grade scores and positive correlations with all 4th and 5th grade scores except 4th grade CTBS vocabulary. The correlation with RMI per cent of miscues that resulted in no loss of comprehension reached a significance level of .05. Multiple regression equations which used 3rd grade CSI in the first step indicated that total print awareness

contributed .29, .65, .52 to the variance for 5th grade CTBS vocabulary, comprehension and total scores (mcr^2 = .6523, .8497, .9326; significance of $F_{1,13}$ = .0051, .0001, .0000) respectively.

In summary, print as a message and total print awareness were oral language features that predicted 4th and 5th grade, but not 3rd grade reading achievement. However, talk about letters or print-as-a-word was not a good predictor of reading scores. Therefore, as researchers we need to consider the possibility that children's conceptions about print that deal with its meaning explain more of their differential ranking not on early reading tests as presently constructed, but on later (at least 4th and 5th grade) tests than comments on print as a word or letter.

Definitions

Requesting or offering a definition was positively correlated with 11 of the 12 reading measures and reached the .05 level of significance with the RMI retelling with prompts and %NLC. The relationship was stronger with the CTBS 4th and 5th grade scores than with the 3rd grade group which did contain the one negative correlation, 3rd grade comprehension. On a multiple regression equation, definitions entered in step 4 and contributed .03 to a

mcr^2 of .9829; significance of $F_{1,11}$ = .0000 with CTBS 3rd grade vocabulary as the dependent variable. The effect of this variable was small, but consistent. It indicates interest in and attention to word meanings or origins.

Analogies and Regularities

The producing of analogies did not show a significant or consistent relationship with reading measures. In fact, for half the correlations, the significance level was close to p = .5. Commenting on the regularities of classroom language use was usually negatively correlated but not significantly with reading achievement. In one multiple regression equation with CTBS 4th grade vocabulary as the dependent variable, regularities contributed .11 to the variance in step 3 (mcr^2 = .8534, significance at $F_{1,11}$ = .0026). It does not seem useful to consider this measure, or analogies, as predictors of reading ability.

Corrections

Although the correlations for the proportion of correcting behaviors to total speaking turns with reading measures were generally not significant, some patterns emerged which suggest that this feature merits further study. However, correcting of self-pronunciation was the

only category to show a significant and negative relationship. For 3rd grade CTBS scores the significance was $p \leq .01$ and for most of 4th and 5th grades, $p \leq .05$. The negative relationship also held for RMI scores. In contrast, the rate of self-corrections other than for pronunciation, was positively correlated, though weakly, with all reading measures. This suggests that a monitoring of one's meaning, needing to make sense to the audience, is more closely related to reading ability than attending to one's pronunciation.

For the correcting of others, another distinction was noted. The rate of correcting others' propositions was negatively correlated, though not significantly with 3rd grade CTBS scores, but positively correlated though not significantly with the later reading measures except RMI retelling without prompts. Moreover, the rate of correcting other's behavior was positively correlated with all reading measures except the 4th grade CTBS vocabulary scores.

Correcting categories, then, are positively correlated with later reading measures, but not with all 3rd grade measures. They always indicate an active involvement with the material, whether it be a word, a proposition, or a behavior. Furthermore, they imply that

that child has a standard, a schema, or a plan which is being violated. This active involvement, this comparison of other's input with one's own ideas, is an oral language feature that resembles the interactive reading strategies stressed by some authors (Mason, in press). In this kindergarten, the corrections were produced most often in peer interaction. This suggests that peer groups provide an area for rehearsal of strategies that are analogous to a dialogue with authors.

Speaking Turns

The total number of speaking turns by a child in kindergarten was significantly negatively correlated with 3rd grade reading measures. However, for 4th grade CTBS comprehension and 5th grade RMI retelling without prompts and %NLC, the correlations were nonsignificantly positive. This suggests a weak trend from a negative to a positive relationship between kindergarten total speaking and later (4th and 5th grade) measures of reading especially with the RMI which elicits talk. One way to verify the existence of this trend is to refine the total speaking feature by examining the functions for which language was used and the contribution of each function to the trend.

Functions

Correlations with reading scores from the dichotomous

division of speaking into the proportional use of the analytic and interpersonal functions had a significance level approaching chance. However, for 4th grade vocabulary comprehension and total CTBS scores, the correlation with the interpersonal function was positive with p = .09, .36, .18 respectively. These results suggest that by 4th grade, the interpersonal use of speaking in kindergarten may be related to reading achievement. The next question is which, if any, of the separate functions contribute to the trend of a positive relationship for speaking in kindergarten with later reading measures.

A child's rank on total quantity of structones, informational statements, was notable for its generally negative correlations with reading measures, which reached .05 level of significance with 3rd grade CTBS vocabulary scores. Rank on proportion of structone use was also negatively correlated, though not significantly with reading measures, except for 3rd grade comprehension and total CTBS scores. This would imply that informational statements do not relate to later reading achievement; however, when this measures was examined for each activity, as will be reported below, some contribution toward reading achievement could be demonstrated.

Signones deal with personal or psychological states. Soskin and John (1963) characterize them as quasi-relational. Rank on total signone use was significantly negatively correlated with 3rd grade vocabulary and total CTBS scores and nonsignificantly negatively correlated with all other reading measures except 5th grade retelling without prompts. Signones are part of the interpersonal function. It is possible that their inclusion depressed the positive relationship of the interpersonal feature with reading achievement. To explore this possibility, the use of regones which are attempts which regulate others' behavior and metrones which are evaluative comments will be examined next.

For total regone use the correlations with 3rd grade reading scores were mostly negative, but with 4th grade and most 5th grade reading measures, the correlations were nonsignficantly positive. Moreover, the correlations for the proportion of regone use were nonsignificantly negative for two of the 3rd grade CTBS scores but positive with five of the six CTBS 4th and 5th grade scores. Proportion of regone use also correlated positively, though less strongly, with RMI Retelling with prompts and %NLC. Regones, then, are a function that show a trend from negative to positive for correlations with early to late reading measures.

Metrones showed a pattern similar to regones. Total number of metrones used was significantly negatively correlated with 3rd grade vocabulary and total CTBS scores and negatively correlated with most other reading measures. However, the proportion of metrones produced was positively correlated with 4th and 5th grade vocabulary and total, CTBS scores, and with all RMI measures. Metrones, evaluative comments, always indicate an active involvement, an interaction, with the topic.

In summary, rank on quantity of total and separate function use was generally negatively correlated with 3rd grade reading measures, but a trend toward a positive relationship with later reading measures was noted. Regones, the most clearly interpersonal function, and metrones, a consistently interactive function, were the main contributors to the trend. We have been analyzing here the use of functions throughout the core period. Next we will look at functions of oral language used during specific activities.

Arrival

A child's rank on proportion of talk produced during Arrival Time was nonsignificantly negatively correlated with several CTBS measures and with all RMI measures. The CTBS exceptions were a nonsignificant positive correlation

with 3rd grade vocabulary, 4th grade vocabulary and total score, and 5th grade comprehension.

The children's rank on total quantity of talk during Arrival Time was negatively correlated with 9 of the 12 reading measures, significantly so with 3rd grade CTBS total and %NLC. However, it was positively correlated with CTBS 4th grade comprehension and total and with 5th grade comprehension scores.

The proportion of use of signones, or regones, or metrones during Arrival Time was negatively correlated with all but one of the reading measures. These negative correlations reached significance for RMI retelling with prompts, 3rd grade vocabulary and total CTBS scores, and 5th grade vocabulary scores. However, the pattern for the proportional use of structones was different. For 9 of the 12 reading measures, the correlation was positive, though not significantly. These measures were: Retelling without prompts, 3rd grade vocabulary and comprehension, 4th grade vocabulary, comprehension and total, 5th grade comprehension and total. Arrival Time signones and structones entered into several of the multiple regression equations. Signones contributed negatively. For example, with 5th grade CTBS total score, the proportion of signone use during arrival produced a $mcr^2 = .4730$ with

a significance of $F_{1,11} = .0134$ on the first step. In contrast, structones contributed positively. The proportion of structones during arrival produced a $mcr^2 = .0564$ with a significance of $F_{1,11} = .0049$ on the first step when 5th grade vocabulary was the dependent measure.

These findings indicate that children who produced a higher proportion of their classroom talk during Arrival Time were not the ones to score higher on later reading measures. However, for those whose Arrival Time talk contained a high proportion of structones, there was a trend toward a positive relationship with most reading measures.

Group Time

The proportion of talk produced during Group Time was negatively correlated, though not significantly, with all reading measures except 5th grade comprehension and total CTBS scores. The children's rank on quantity of talk during Group Time was negatively correlated with later reading measures and significantly so for RMI retelling with prompts, 3rd grade vocabulary, and total.

The child's proportional use of signones, or regones, or metrones during Group Time was negatively correlated with almost all the reading measures. For retelling with

prompts, 3rd grade vocabulary, 3rd grade total and 5th grade vocabulary, comprehension, these negative correlations reached .01 or .05 level of significance.

However, the proportion of structone use showed a different pattern. Although its relationship to 3rd grade CTBS scores and retelling with prompts was similarly negative, the relationship with CTBS 4th grade vocabulary, comprehension, total, and 5th grade comprehension and total and RMI retelling without prompts and %NLC was positive, though not significantly. This variable did not enter into any of the multiple correlation regression equations, and hence its contribution to the variance for reading measures must be small.

These findings suggest that children who produce a higher proportion of their talk, or a large quantity of talk during Group Time are not the ones who score higher on later reading measures. However, for those whose production of structones is a high percent of their Group Time contributions, there is a trend toward a positive relationship with 4th and 5th grade CTBS scores and some RMI scores.

Sharing Time

The proportion of a child's total talk produced during Sharing Time as compared to other activities was

negatively correlated with most reading measures. This relationship reached .05 level of significance for 4th grade CTBS vocabulary and total scores. Similarly, the children's rank on their quantity of talk during Sharing Time was negatively correlated with 10 of the 12 reading measures, 5th grade RMI retelling without prompts being an exception. For 3rd grade CTBS vocabulary and total scores the negative correlation reached significance at the .05 level.

By examining the proportional use of the four functions of language during Sharing Time, additional information can be derived about the relationship of this activity to reading. Proportion of signone or regone use was negatively correlated with all reading measures. For signones, the relationship reached significance for CTBS 3rd grade scores, 5th grade vocabulary, and for RMI retelling with prompts. In a multiple regression equation with 3rd grade vocabulary as the dependent variable, Sharing Time signones accounted for .5980 of the variance (significance of $F_{1,11} = .0032$). On the other hand, the proportion of metrones showed a positive correlation with 3rd grade comprehension and 4th grade vocabulary CTBS scores and with 5th grade RMI retelling without prompts. The proportion of structones was negatively correlated

with 4th and 5th grade CTBS scores, but positively correlated, and significantly so ($p \leq .05$) with 3rd grade vocabulary and with 5th grade RMI retelling with and without prompts. In the multiple regression equations, on the first step, Sharing Time structones accounted for .6211 of the variance (significance of $F_{1,11} = .0023$) with 3rd grade vocabulary as the dependent measures; and .3521 significance of $F_{1,11} = .0420$) with retelling with prompts as the dependent measure.

These findings indicate that the children in this class who produced a high proportion of their talk or a great deal of talk in Sharing Time were not the ones who later did better on reading tests. However, a high proportional use of structones, informational statements, and to a less extent, metrones, evaluative comments, did show a positive relationship to reading achievement. Sharing Time in this class was conducted with few talking constraints. It resembled a conversation with no set topics and with encouragement for comments and questions. Nevertheless, talk during this time was less positively related to reading achievement than that during free play (Work Time) which had essentially no constraints on topic, turns, or audience. We turn next to the consideration of Work Time.

Work Time

Work Time was the label given to a period of free play during which children chose freely their activities such as blocks, housekeeping, or woodworking. The relationship between Work Time oral language functions and reading measures was distinctly different from the relationship of these functions during other activities. For the whole research period, rank on total Work Time speaking turns was positively correlated with all reading measures, though not significantly. Especially important is consideration of the proportion of functions produced during Work Time of the core period. Rank on the proportion of talk during Work Time as compared to the proportion of talk during other activities was significantly and positively correlated with 3rd grade CTBS vocabulary and total scores and with RMI retelling with prompts for the 12 cases, and nonsignificantly but positively correlated with all reading measures when 14 cases were considered. The strength of this factor can be gauged from its presence in the multiple regression equations, where it entered sometimes as the first factor and sometimes as the second following the kindergarten intelligence measure (Slosson). As a first factor for 4th grade comprehension CTBS, $mcr^2 = .4077$ with a

significance of $F_{1,11} = .0345$. For 5th grade CTBS vocabulary the contribution to mcr^2 was .4135 in step 2 ($mcr^2 = .7945$, significance of $F_{1,11} = .0018$).

The relationship among the separate functions of speaking during Work Time and reading measures was also distinctly different from that obtained for other activities. The difference lies partly in the use of structones. Unlike the pattern for Arrival Time, Group Time, and Sharing Time, the use of structones during Work Time was negatively correlated with all CTBS measures. Moreover, in most activities, the use of signones was negatively correlated with reading measures. But in Work Time, a high proportional use of signones was positively correlated with CTBS 3rd grade comprehension and total scores, 4th grade comprehension, and 5th grade vocabulary as well as with RMI retelling with and without prompts. For regones, the correlations were negative for CTBS 3rd grade scores, but positive with all 4th grade measures and 5th grade CTBS vocabulary and retelling with and without prompts. Regones and metrones both showed a pattern of negative correlations with third grade CTBS scores, but positive correlations with 4th and 5th grade reading measures. When 12 cases were considered, with 5 of the 12 reading measures the positive correlation with

metrones during work reached significance at the .05 level. When Work Time regones and metrones entered into the multiple regression equations, they contributed modest amounts to the variance (an average of .17).

The children who produced a high proportion of their talk during Work Time (free play) were the ones who became the better readers. It was not the use of structones, the main contributor to the analytic function, that brought about this result, but rather the use of a high proportion of signones, regones, and metrones, which are the factors used to compose the interpersonal function of language. Therefore, I conclude that the interpersonal use of language during Work Time is one of the most important indicators of future reading ability.

Evaluation Sessions

The proportion of talk during Evaluation Sessions was positively correlated with all reading measures except 5th grade CTBS and retelling scores. However, kindergarten total speaking turns during evaluation was negatively correlated with most reading measures, significantly so at .05 level with 3rd grade CTBS vocabulary. The proportion of structone use in this activity was negatively correlated with all reading measures except 3rd and 4th grade comprehension CTBS scores. The proportion of signone

use was negatively correlated with almost all reading measures, and this relationship reached .05 level of significance with 3rd grade vocabulary and comprehension and all 5th grade CTBS scores. Regones, however, were positively correlated with 7 of the 12 reading measures and metrones were generally negatively correlated with the reading measures, except for RMI retelling without prompts and %NLC.

A child who produced a high proportion of talk during Evaluation sessions generally became a better reader later on. A high rate of regones and low rate of signones also predicted better reading ability. A high proportion of structones or metrones was generally not an indicator of future reading ability.

Transitions

The proportion of talk during Transitions was negatively correlated with 10 of the 12 reading measures, 4th grade vocabulary and 5th grade comprehension being the exceptions. However, rank on total amount of talk during Transitions was positively correlated but not significantly with 4th grade CTBS scores, and 5th grade vocabulary and comprehension. A high proportion of structone use was negatively correlated with all reading measures except 4th grade vocabulary and total CTBS

scores. The proportion of signones, regones, and metrones showed generally negative correlations with the reading measures and this relationship reached significance at the .05 level for all 3rd grade CTBS scores. However, the rate of use of signones during Transitions was positively correlated not significantly with all 4th grade CTBS scores. Regones and metrones were significantly correlated negatively with 3rd grade reading scores, but positively correlated with RMI retelling with prompts. In the multiple correlation regression equations the Transition factor contributed moderate amounts to the variance. For instance, with 3rd grade total CTBS scores as the dependent variable signones during Transition entered as a negative factor contributing .26 to a mcr^2 of .6716 (significance of $F_{1,13} = .0067$) as step two following the negative factor, Sharing Time signones.

Children who produced a higher proportion of their talk during Transition were not the ones who were better readers later. A high rate in the use of structones and signones tended to be related positively to 4th grade reading ability, and a high rate of regones or metrones showed a weak positive relationship with 4th grade vocabulary and 5th grade RMI retelling with prompts.

Results: Summary

The relationship of 61 oral language features with the reading scores of 3rd, 4th, and 5th grade California Test of Basic Skills and a 5th grade Reading Miscue Inventory for a middle class kindergarten has now been reported. Since almost all the measures of total speaking were negatively related to reading, it was necessary to examine language awareness measures and the distribution of talk among the separate activities and across the four functions of language in order to determine features of oral language in kindergarten which were indicators of future reading achievement. With minor exceptions, three patterns of relationship emerged.

1. 32 of the speaking features had a negative relationship with essentially all the reading measures.

2. 7 of the oral language measures showed a generally positive relationship with the reading indices.

3. 19 of the oral language features had a negative relationship with 3rd grade CTBS scores, but a positive relationship with 4th and/or 5th grade CTBS and RMI scores.

4. Exceptions were: print as a word was positive only with 5th grade scores; proportion of structone use was positive with 3rd grade CTBS scores only; and Work

Time signones had some positive and some negative relationships across the CTBS grades.

The following lists show the positive relationships of oral language features with specific reading measures. Kindergarten as a prefix distinguishes data collected from the whole research period as contrasted with the core period. Total refers to a frequency count and proportion refers to a feature as a percent of total speaking turns or use of functions. The 12 case correlations and the 14 case correlations have been combined.

Generally positive with all reading measures: Total definitions, Proportion of corrections of others' behavior, Proportion of self-corrections, Proportion at Arrival Time structones, Kindergarten Work Time total speaking turns, Work Time proportion of talk, Evaluation proportion of talk.

Positive with most 4th and 5th grade reading measures, but negative with most 3rd grade CTBS scores: Print as a message (total), Total print awareness, Proportion of corrections of others' propositions, Proportion of Interpersonal talk, Proportion of regones, Proportion of metrones, Kindergarten Arrival Time total speaking turns, Group Time proportion of structones, Work Time total

functions, Work Time proportion of regones and metrones, Evaluation proportion of regones.

Positive with most 4th grade reading measures, but negative with most 3rd grade and 5th grade CTBS scores: Total regones, Arrival Time total functions, Proportion of Arrival Time talk, Proportion of Arrival Time regones, Kindergarten Sharing Time total, Transition total functions, Transition proportion of signones.

Conclusions

Considering just the oral language features which correlated positively with reading achievement in the later grades, it is possible to present a profile of the kindergarten child who became a better reader later on. This is the child who

- talks with moderate to low frequency compared to other students.
- comments more often than others on print especially on the message bearing qualities of print as opposed to single words or letters.
- requests of offers definitions or etymologies.
- corrects others' propositions or behavior.
- self-corrects to make his/her own message more precise or clear.
- uses a higher proportion of regulative or evaluative

talk rather than informational or personal statements.

- does most of his/her talking during Work Time, but also speaks a lot during Arrival Time, Evaluation Sessions, and during Transitions.
- uses a higher proportion of informational statements during Arrival Time and Group Time and Sharing Time than most students.

The oral language features that presaged reading ability were produced when the teacher imposed the fewest constraints on talk: during free play (Work Time), arrival, transitions, and when the children's opinions or reports were solicited (Evaluation Sessions). At these times the students were free to make choices as to whether or not to speak, what materials or play to get involved with, and what functions of language to implement. At these times, the children were initiating and responding to interaction with their peers more than with the teacher and on topics of their own choice. These parameters of talk seem to be similar to the conditions that surround reading as an interactional process between the author and the reader, a harnessing of personal purposes, experience, and reactions to the printed message.

One might ask why some of the oral language features that are antecedent to later reading ability were negatively

correlated with 3rd grade CTBS which used the same form and level as the 4th grade test. The explanation may lie in the instructional patterns of the first three grades focusing on isolated drills and skills where children's interactional processes are not involved. Or textual factors such as unnatural language and simplified content may be a factor. Particular teacher qualities are probably not involved here as the children were assigned to different classes and schools.

Another objection that can be raised to the conclusions is that they rest on correlation statistics which do not specify a causal relationship. My claim, however, is not that the opportunity to use spontaneous language in the classroom causes reading achievement, but that during such periods children are using the language in the same way that they should use it during later reading. The correlation and multiple regression analyses showed sometimes weak, but always definite trends for the identified positive oral language antecedents. This is all the more surprising since the numbers were small (12 or 14 cases), and the analysis depended on rank order manipulation (Kendall Tau) which disregards the magnitude of the spread between adjacent ranks.

A more serious objection is that the results are derived from one particular middle class kindergarten, and there is a question as to whether they can be generalized to other classrooms. To answer this objection, further research in different sites is necessary. However, that research will be able to build upon the conclusion of this study that it was the spontaneous language use in more natural contexts and not the language during teacher directed activities that showed a positive relationship to better reading ability in the later grades.

Implications

This study provides evidence that peer interaction as well as children's dialogues with the teacher on topics of their own choosing are strongly related to reading competence in the later grades. Therefore, peer talk and interaction between individual children and the teacher should be included in every class. They may be as important for closing the gap between poor and good readers as direct reading instruction. Also, a teacher may use the list of oral language features that are positively related to reading ability, or the profile of a future good reader, to identify children who need more opportunities or support for oral language production in

the classroom. This encouragement may be particularly important for children who have missed such experience before school.

For researchers, a set of kindergarten oral language features that presage better reading ability has been identified. Each feature can serve as an hypothesis to be verified in other middle class and lower class and different ethnic composition kindergartens. Also, natural contexts in school where children have the maximum choice of topic, participants, and materials and can display their interactional competence need to be included in research designs in order to discover more about the contribution of oral language to reading ability.

Acknowledgements

The research reported herein was supported in part by an institutional grant from Texas Woman's University, Denton, Texas. Appreciation is expressed to the teacher, students, and parents and Dr. Philip Barck of the Los Alamos, New Mexico school district for cooperation in data collection and to Dr. Flora Roebuck and Dr. Margaret Griffin of Texas Woman's University for assistance in statistical analysis and interpretations, Dr. Vera John-Steiner of University of New Mexico for functional category analysis, and Dr. Jan Teddlie for Reading Miscue Inventory analysis.

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